NETWORK DEVELOPMENT STAKEHOLDER GROUP MEETING (ND SG)

ENTSO-E

14th ND SG meeting

26 May 2016

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Participants

EASE

RGI

FSOG

ENTSO-E

CAN

ACER

1 News from the Brussels' scene

2 Report availability of technologies

3 TYNDP 2016

4 TYNDP 2018 : CBA 2.0 and scenarios

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Agenda:

13:00 – 13:15 - News from the Brussels' scene:

- Network codes – publication NC RfG;
- Infrastructure forum;
- 3rd PCI Selection;

13:15 – 14:00 - Report Available technologies

14:00 – 14:45 - TYNDP 2016

- latest status - TYNDP PMO – 15 min
- what do you what to see in the TYNDP 2016 – open discussion all – 45 min

14:45 – 15:30 – TYNDP 2018 : CBA 2.0 and the 2018 scenarios– Irina

15:30 – 15:45 - AoB

15:45 – 16:00 – Conclusions and the next meetings

News from the Brussels' scene

Network Codes:

- NC RfG - Requirements for generations
  - Publication in official journal 27.4.2016
  - Regulation N°2016/631 version 14.4.2016
  - entry into force 17 May 2016
- Guideline on Transmission System Operation (former NC OP, OPS et LFC)
  - Voted ECBC 4.5.2016

News from the Brussels' scene

Network codes:

- NC RfG published in Official EU Journal 27 April 2016*; entry into force 17 May 2016
- DCC and HVDC entry into force Autumn 2016
- System Operations Guideline: ECBC voted 4 May 2016
- NC Emergency and Restoration: agenda ECBC 4 May 2016

Network Code Status - February 2016

Pre-comitology	Comitology	Positive ECB vote awaiting entry into force	Entry into force
- Electricity Balancing - Emergency and Restoration *Both codes comitology expected in 2016*	- Operational Guideline: ECBC voting planned for ~~16 February~~ 4 May	- RfG (6/2015) - HVDC (9/2015) - DCC (10/2015) - FCA (10/2015)	- CACM (on 14/8/2015) - RfG: ~~expected March~~ 17/5/16 - FCA expected in July - Others: Entry into force expected within 6 to 10 months of positive vote.

*Regulation N°2016/631 version 14.4.2016

News from the Brussels' scene

Infrastructure Forum: 23-24 June 2016 in Copenhagen

- The Energy Infrastructure Forum is a platform for exchange of views between policy-makers and stakeholders.
- An open environment allows the Commission to get familiar with the stakeholders' concerns on practical challenges stemming from ambitious EU policy goals and to learn from their expertise.
- It is aimed at facilitating stakeholders' participation in the policy shaping process and making sure that legislation is goal-oriented, operational and comprehensive.

Goal:
Discussion of major issues relating electricity and gas transmission infrastructure and EU energy policy. The Forum brings together, under the Commission's chairmanship, key stakeholders such as the members of the regional groups established for the TEN-E priority corridors (Member States, TSOs, NRAs, project promoters, ENTSO-E, ENTSO-G, ACER and EIB), along with the EU institutions (European Parliament, Committee of the Regions, the Economic and Social Committee who expressed their strong interest) and EU organisations (NGOs).

Agenda:
Currently under discussion

News from the Brussels' scene

3rd PCI Selection Process:

27 May 2016 – Cross-sectoral Regional Groups' workshop "Infrastructure fit for Europe's energy needs"

Goal:

Opportunity for various stakeholders of the PCI process (Projects of Common Interests) to discuss the medium and longer term developments in the energy system of the EU (e.g. evolution of energy demand; deployment of RES; technological developments) and to look into the possible implications for the network planning being done today

Agenda:
https://ec.europa.eu/energy/sites/ener/files/documents/27%20May%20stakeholder%20seminar%20-%20agenda.pdf

Next steps:

Discussion of infrastructure needs in the regional groups starting in July-September 2016

News from the Brussels' scene

ENTSO-E advisory Council

- Role is to improve the transparency on the ENTSO-E activities. The Council will not be involved in the day to day activities
- The members have not been yet fully confirmed
- The first meeting expected not before autumn.

EC interconnection target group:

- Currently the member list still to be confirmed
- The first meeting expected beginning of July
- No other further info at the moment

1 News from the Brussels' scene

2 Insight report availability of technologies and stakeholder involvement

3 TYNDP 2016

4 TYNDP 2018 : CBA 2.0 and scenarios

Technologies for Transmission System

Contents

1. Introduction 3
2. HVAC Power Technologies 3
   3.1 Overhead Lines 3
   3.2 HVAC cables 5
      3.2.1. Onshore cable technology 5
      3.2.2. Offshore cable technology 5
      3.2.3. Gas insulated lines 6
   3.3 HVAC Substations 6
      Phase Shifting Transformer 7
      Static VAR Compensators 7
      STATCOM 7
      WAMS, Synchrophasors and PMU 7
4. HVDC Power Transmission 8
      4.1. Introduction 8
      4.3. Extruded XLPE HVDC Cables 8
      4.4. Line Commutated Converter (LCC) technology 9
      4.5. Voltage Source Converter (VSC) technology 9
4. HVAC / HVDC Hybrid System 10
      4.1. HVAC / HVDC system Interaction 10
      4.3. Hybrid HVAC / HVDC Overhead Lines 10
5. Summary Table of Technology Availability 11
Abbreviations 14

Drafters:

T&D Europe
Orgalime
Europacable
FSOG
ENTSO-E

The Insight report is currently with the communication experts in order to finalise it for the TYNDP publication

Insight report on the stakeholders involvement in the TYNDP

Contents

1. Planning and the impact on our future- why we all care 3
2. Join us to make a positive change for the future - public acceptance on grid development 3
3. Stakeholder engagement for the TYNDP – how is it being done? 4
4. Looking back: the TYNDP 2016 – when, what and your suggestions 4
   TYNDP 2016 and our interactions 5
   Your input to our processes and deliverables and what they influenced 5
5. Looking forward: the TYNDP 2018 6
   Why should you continue telling us your opinion? 6
   What are/will be the relevant instances of engagement for the TYNDP 2018 process, where are these different from the TYNDP 2016 6
6. Impressions from some of our stakeholders 6

Drafters:

FSOG
RGI
ENTSO-E

The Insight report is currently with the communication experts in order to finalise it for the TYNDP publication

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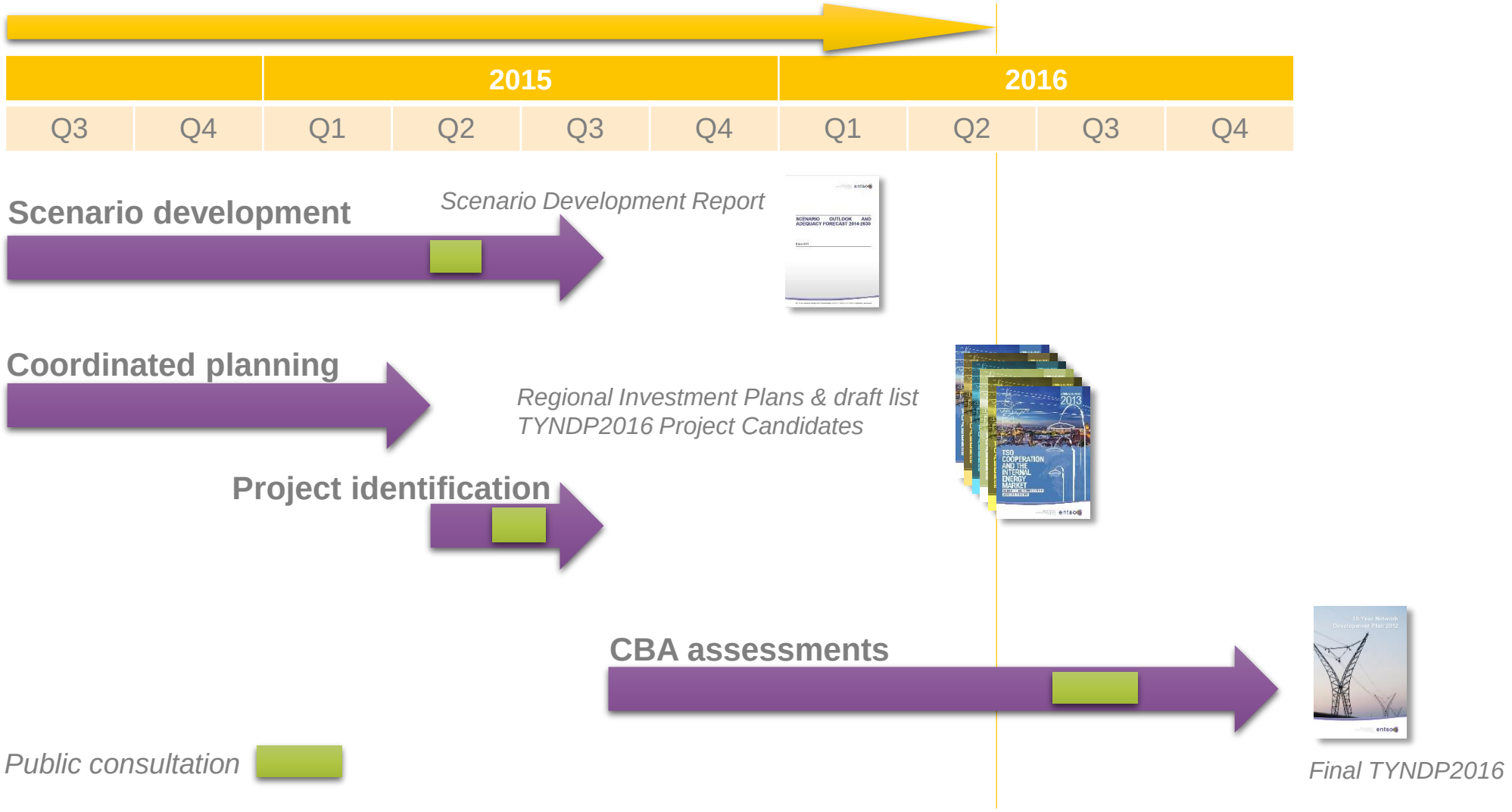
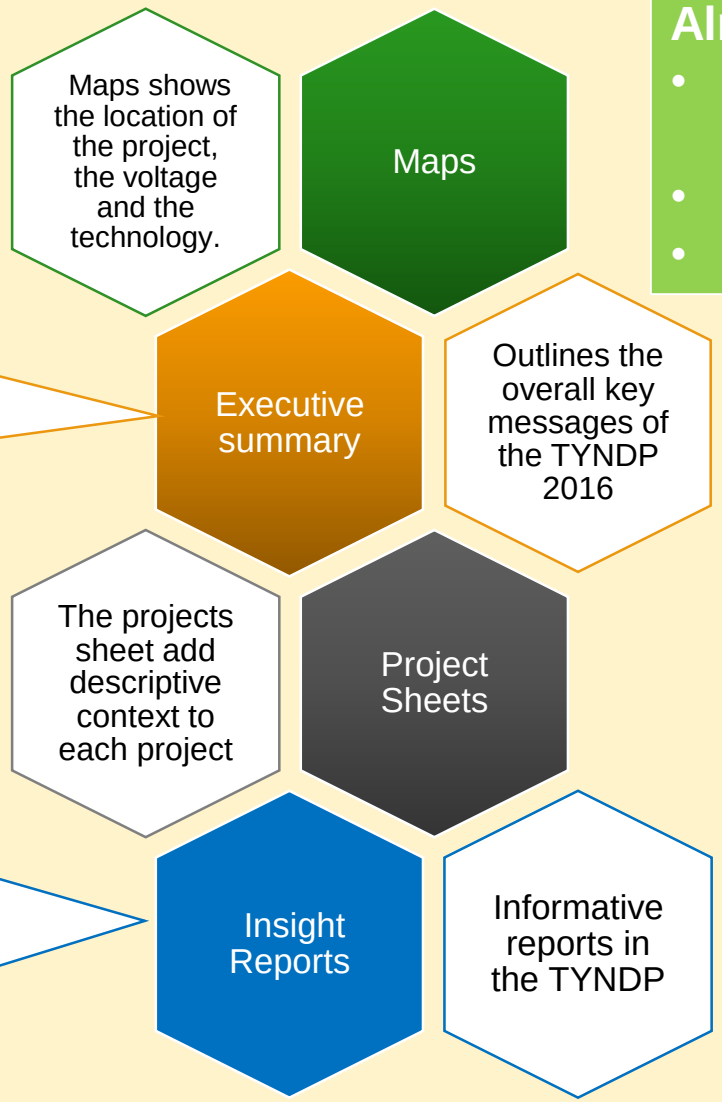
TYNDP2016 timeline



Publications by the Summer

- Short report focused on key messages
  - Includes regional focus on relevant boundaries

The insight reports add modularity to TYNDP. Here topics are broken down into segments. This allows readers to focus on areas of personal interest. The Insight reports are split into 'Topics' and 'Regions'



Already published

- TYNDP scenario development report
- TYNDP 2016 list of projects
- Six Regional Investment plans

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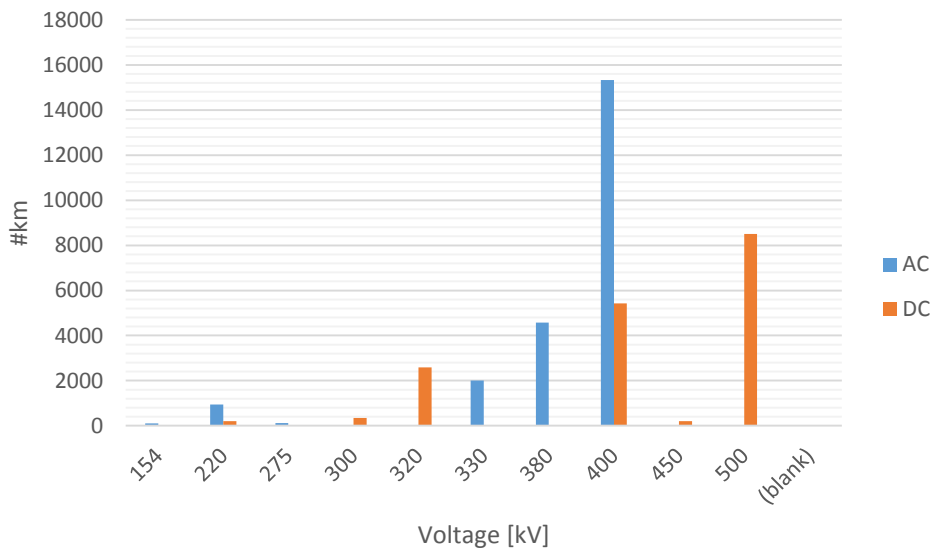
Some draft results

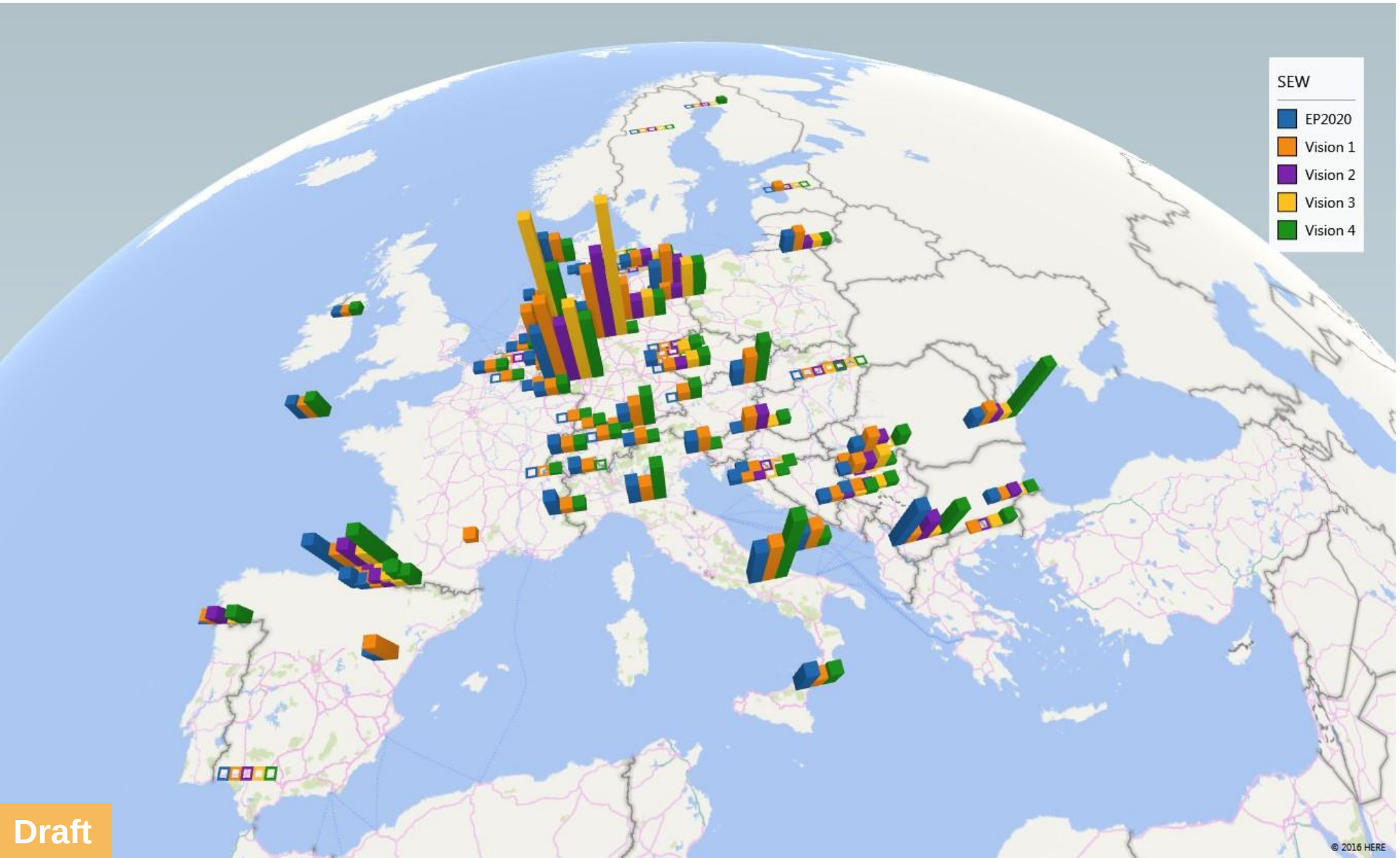
Some draft statistics

technology	Length [km]
AC	23088,2
DC	17259

Type of element	Number of elements
Compensation	2
LCC converter station	1
Overhead Line	248
Phase Shift Transformer	7
Subsea Cable	49
Substation	55
Underground Cable	15



Draft assessment results – Social Economic Welfare

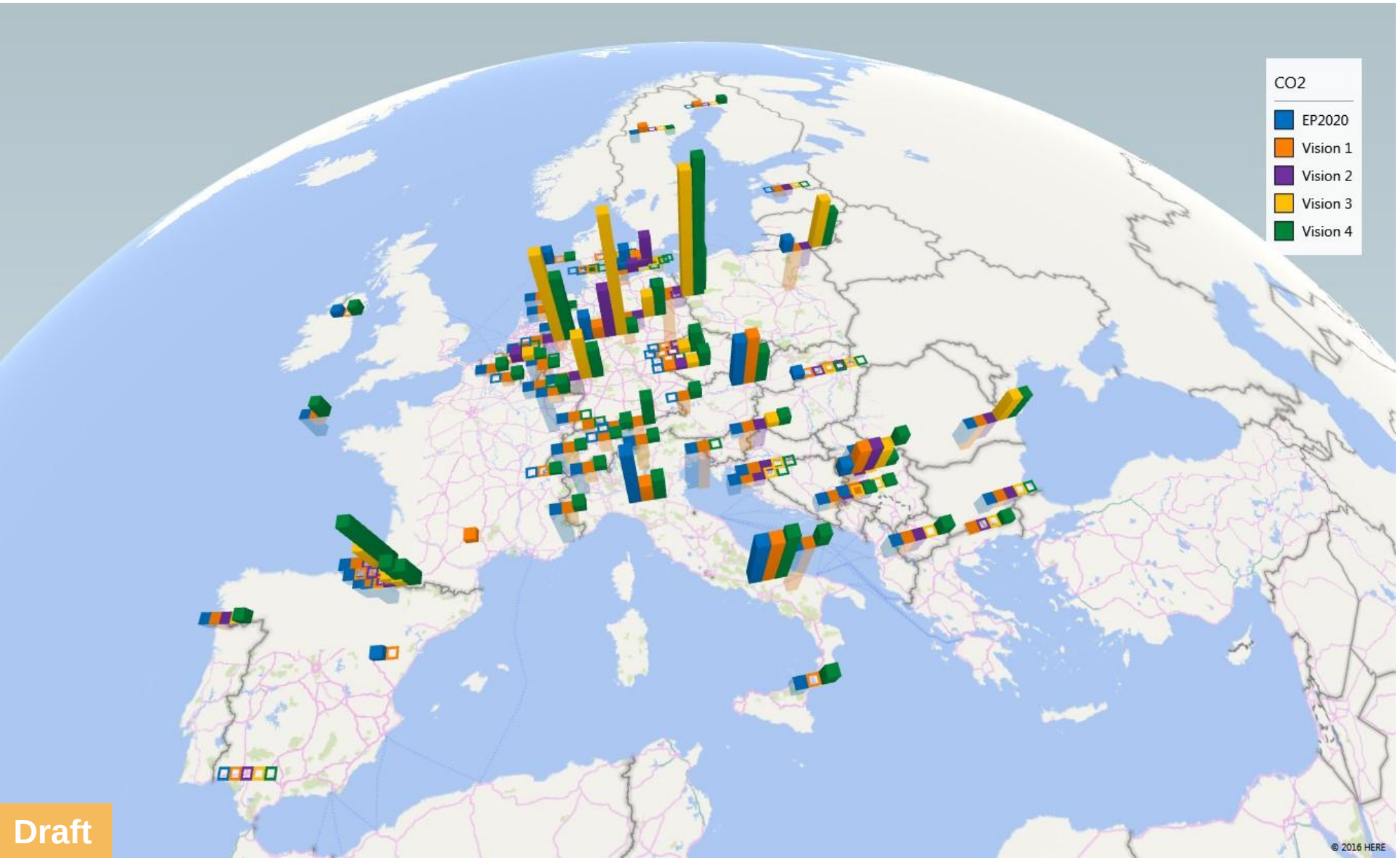


Does not cover here:

- Connection projects
- Projects promoted by non-ENTSO-E members
- Some internal projects

Draft

Draft assessment results – CO2 emissions



Does not cover here:

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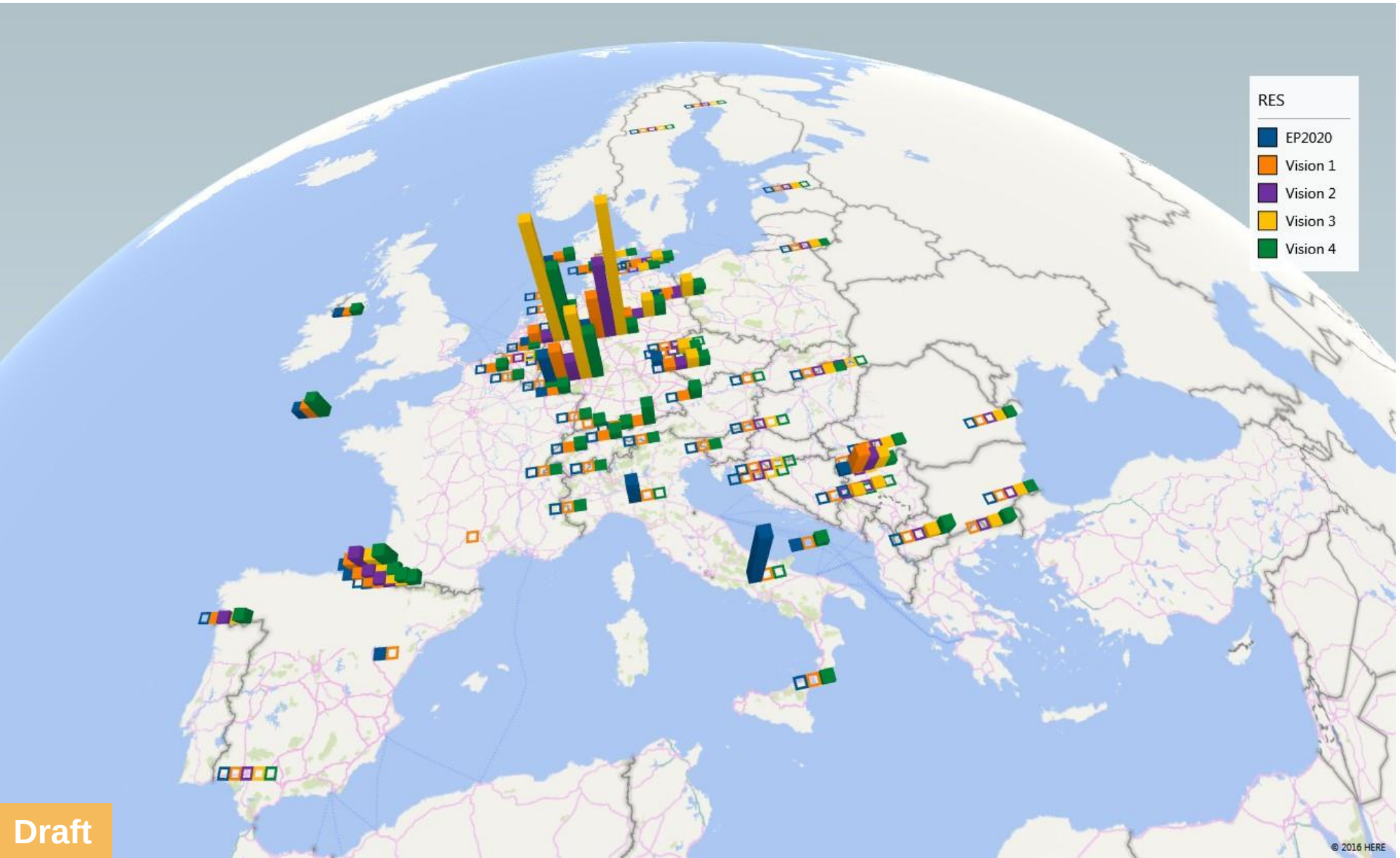
Draft

Draft assessment results – RES integration



Does not cover here:

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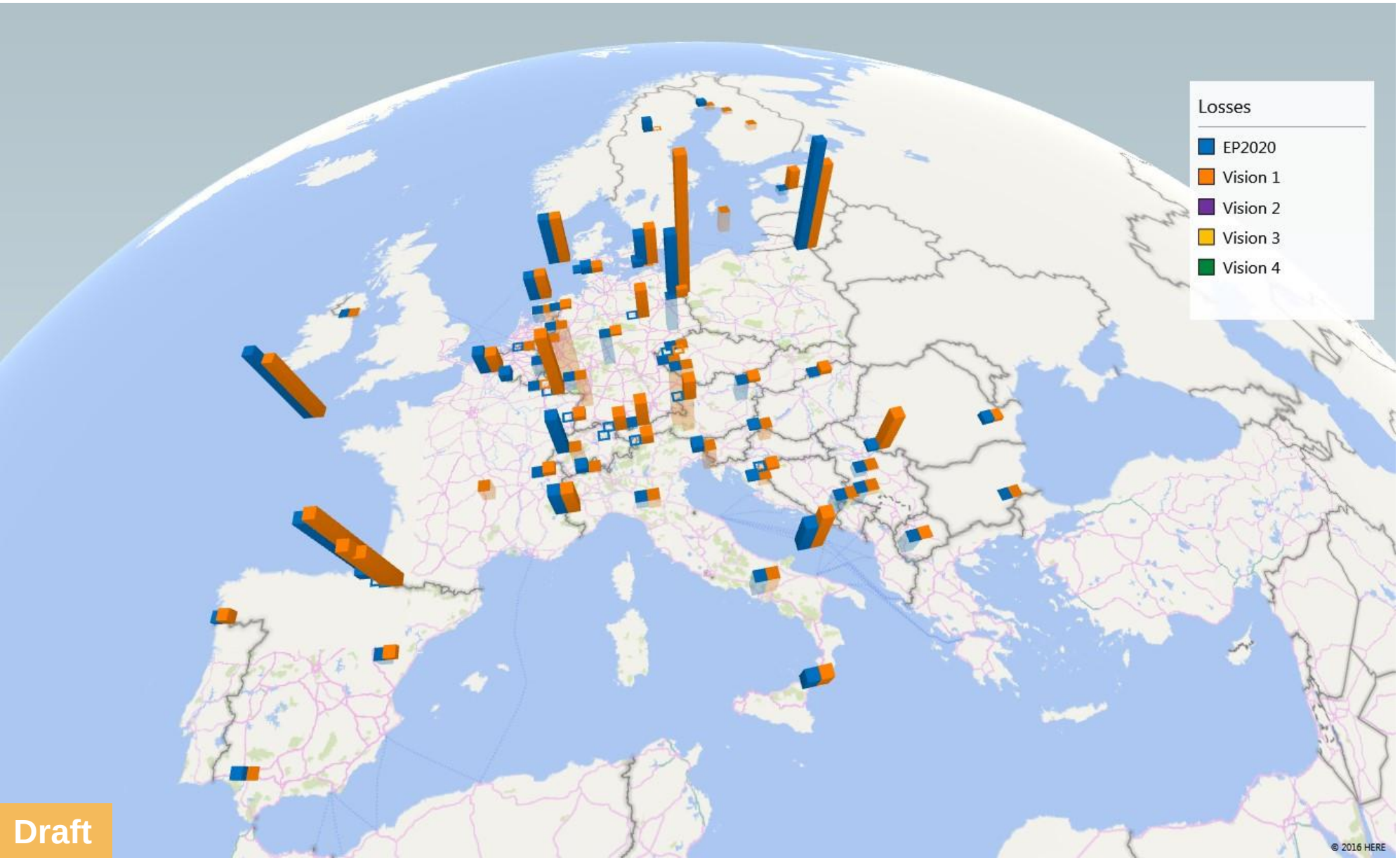
- Some internal projects

Draft

Draft assessment results – Losses



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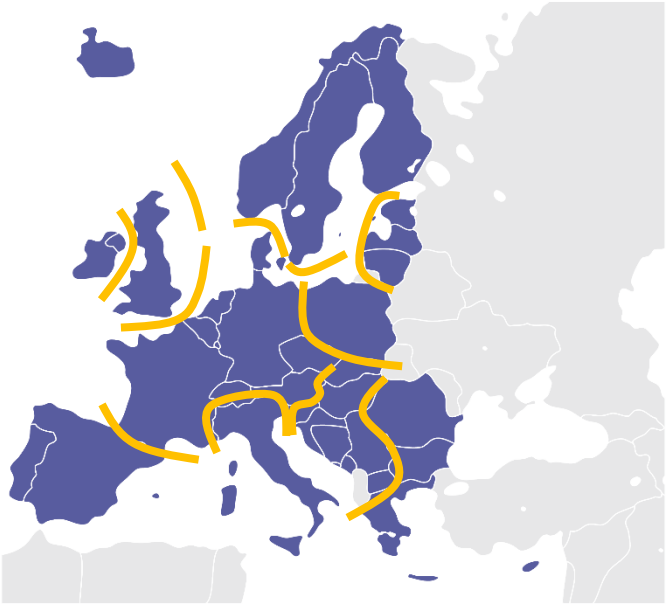
- Some internal projects

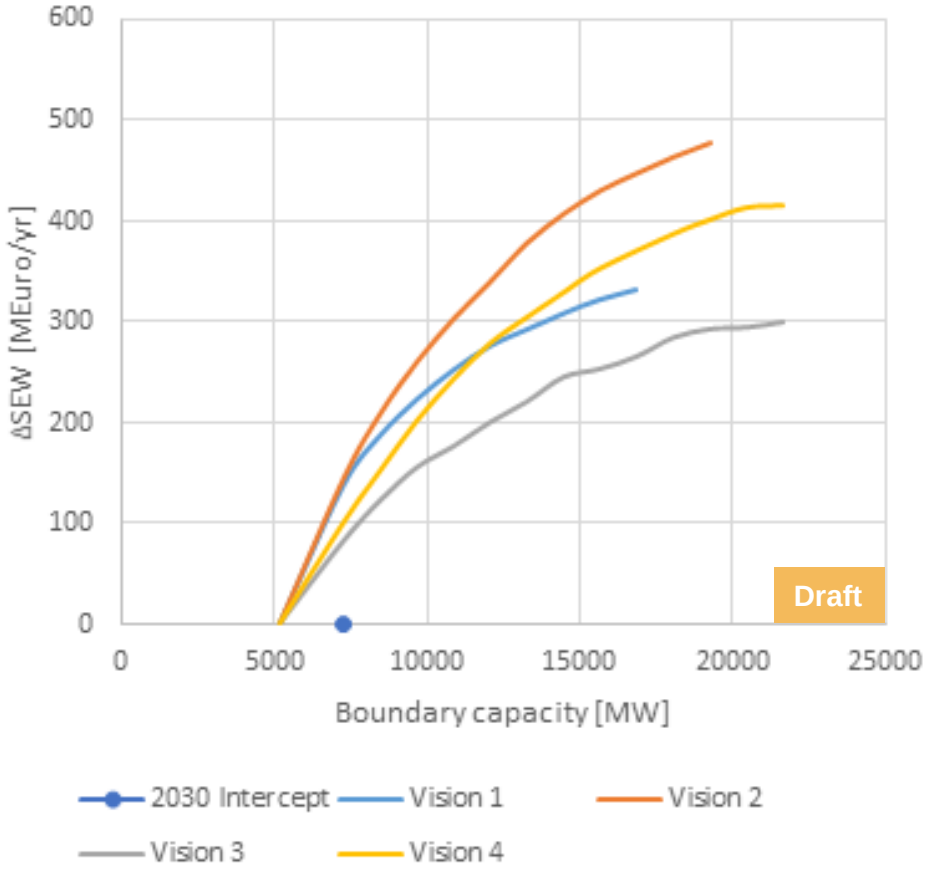
Draft

Capacity analysis

- New complementary analysis performed in TYNDP 2016
- Provides a view on relation between capacity and social economic welfare at specific boundaries



Example: Nordic boundary



TYNDP 2016 - Key Steps

Stage 3 - TYNDP Packge 2016	DEC 2016
◦ Scenario Outlook and Adequecy Assessment (SOAF) ◦ TYNDP 2016	
Stage 2 - Project Assessment	JUN 2016
◦ Cost benefit analysis of projects.	
Stage 1 - Planning	OCT 2015
◦ Common Grid Planning ◦ Scenario Development ◦ Project Submission	

- Report TYNDP Package 2016 (Forthcoming)
- Consultation TYNDP Package 2016 (Forthcoming)
- Reports 6 TYNDP Regional Investment Plans (Final & Download)
- TYNDP 2016 list of projects (Final & Download)
- Consultation TYNDP Regional Investment Plans + TYNDP 2016 Candidate Project list
- Report Scenario Development (Final & Download)
- Consultation Scenario Development (Concluded)

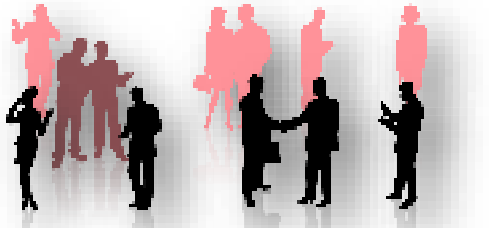
Consultation Publication

Spring 2017- Submission of projects in the PCI process

Dec 2016 – publication of the final TYNDP 2016

Oct 2016 – updated TYNDP 2016 submitted for **ACER opinion**

Oct 2016 - public webinar
Explain the changes done in the TYNDP due to the stakeholders' feedback



22 or 23 June until 9 Sept 2016 release of the TYNDP 2016 for **consultation**

SACOI3 project- new project in the TYNDP 2016

NDSG recommendation

ND SG Stakeholders did not have a formal objection to include the project but members asked for a sound justification explaining why the project has to be included at this late stage. In addition the project can be included in the TYNDP 2016 if the new project does not harm the results of the other projects compliant with ENTSO-E Guideline.

Explanation of the SACOI3 project

The main characteristics of the SACOI3 project are:

- HVDC tri-terminal link connected to: 400 kV Codrongianos node (IT) – 150 kV Lucciana node (FR) – 400 kV Suvereto node (IT)
- 200 kV, 400 MW (enabling 100 MW supply to Corsica)
- 2 HVDC modules: (each) about 125 km HVDC undersea cable + 25 km HVDC underground cable + 265 km aerial HVDC line
- costs: about 600÷650 Mln€
- commissioning date: 2023
- classification: long-term project
- environmental impact is reduced because it will replace the existing SACOI2 link which is close to the end of its lifetime

Explanation of the SACOI3 project

- The inclusion of the project in the TYNDP at this late stage follows up the communication of 26 February 2016 from the Corsican system operator highlighting that the project is necessary and urgent for the security of supply of the Corsican system
- This was fixed by a recent Ministerial decree establishing the need to upgrade the HVDC terminal in Corsica before 2023 (decision included in the last Corsican Energy Master Plan)
- 2023 is the expected year when the existing SACOI2 project will not be working any longer
- Due to the technical complexity of the project (HVDC tri-terminal interconnecting 2 different voltage levels, 2 Islands in 2 Countries, partly sub-sea, partly OHLs) its implementation will take at least 6÷7 years. Therefore it is necessary to start it soon to be able to finish by 2023
- The assessment project does not affect the results of any other projects because, although interconnecting Italy and Corsica, it is similar to an “internal” line (Corsica is interconnected only with Italy)

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The work on the 2018 has started

Drafting the TYNDP

Define the assessment methodology – CBA 2.0

started

Define the main principles for the TYNDP 2018

Planning exercise and projects assessment:

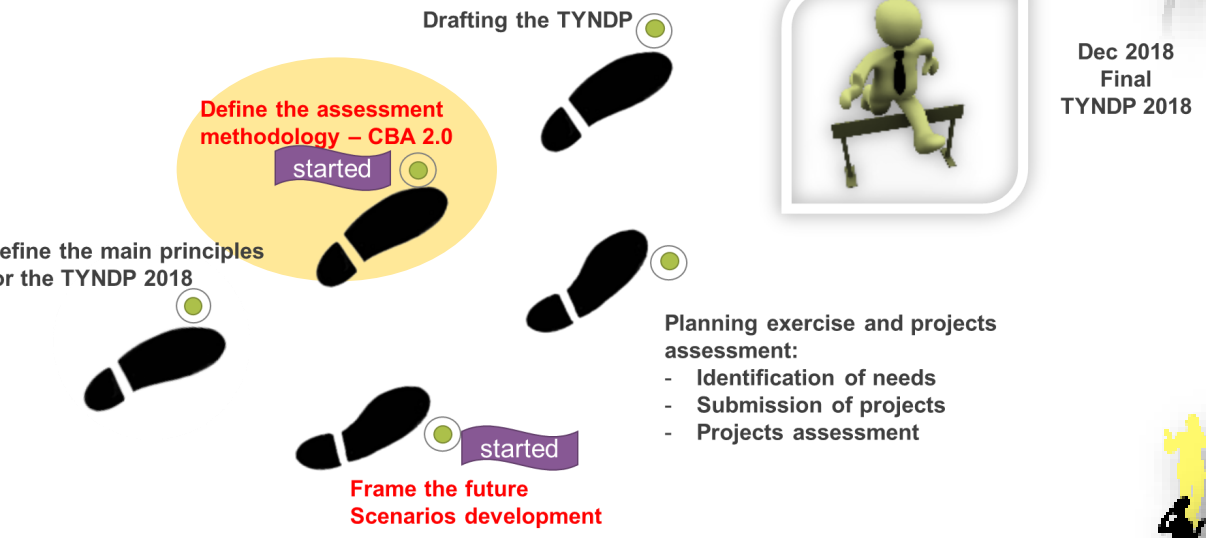
- Identification of needs
- Submission of projects
- Projects assessment

started

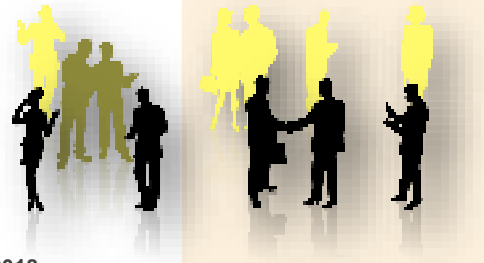
Frame the future Scenarios development

Dec 2018
Final
TYNDP 2018

CBA 2.0 methodology



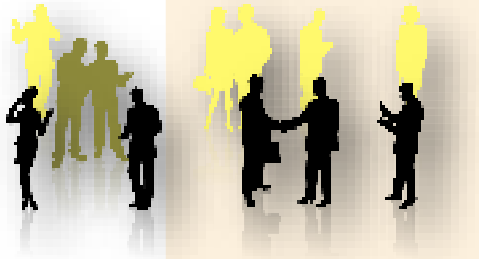
Dec 2018
Final
TYNDP 2018



- **16 March 2016 – Public workshop** to explain the improvements and the get the first feedback
- **25 April – 31 May – public consultation** on the draft CBA 2.0
- **11 July 2016 - public webinar CBA 2.0** – what we implemented or not from the stakeholders feedback

October 2016 – expected official ACER opinion

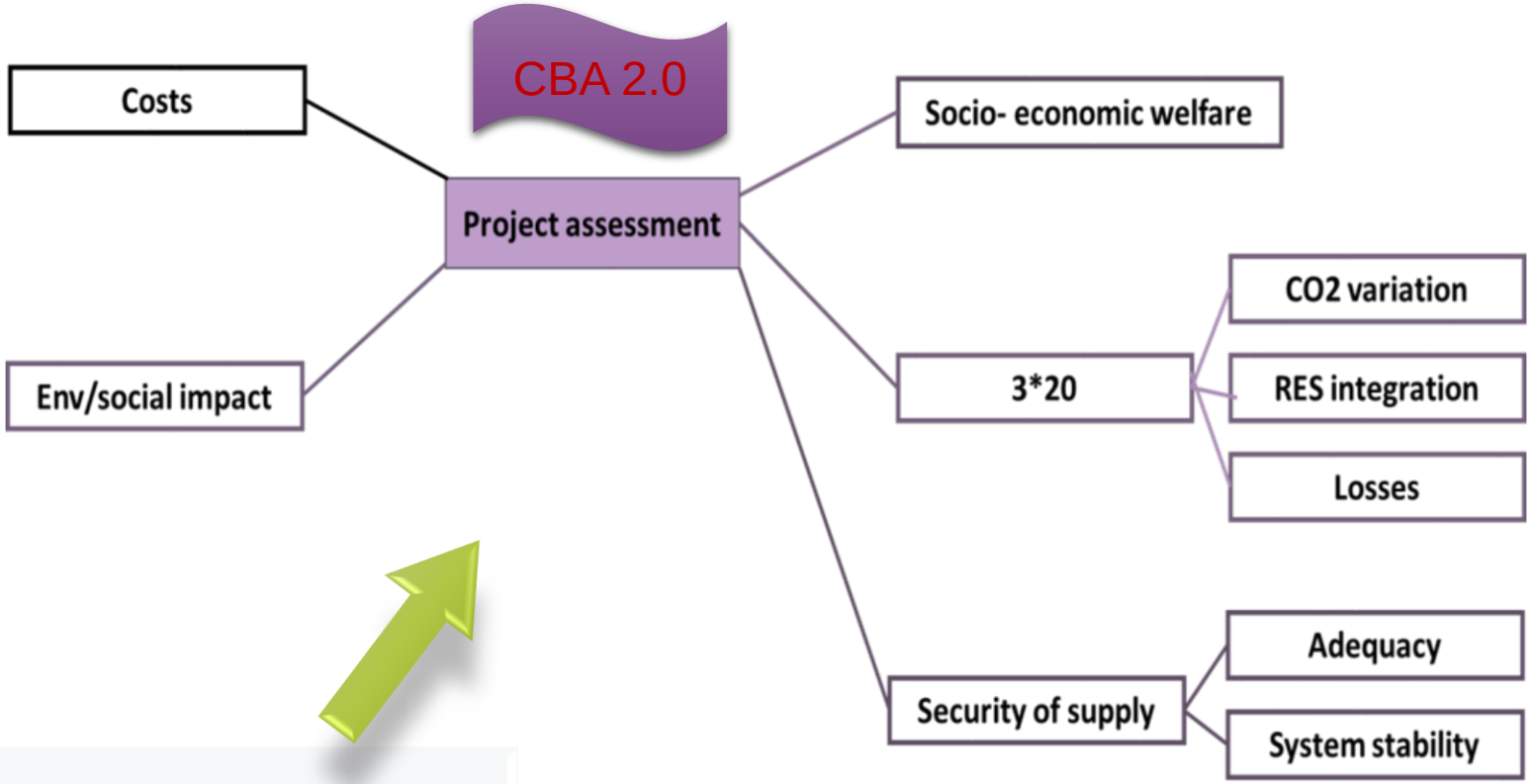
Sept –October 2016– refinement of the CBA based on the received feedback

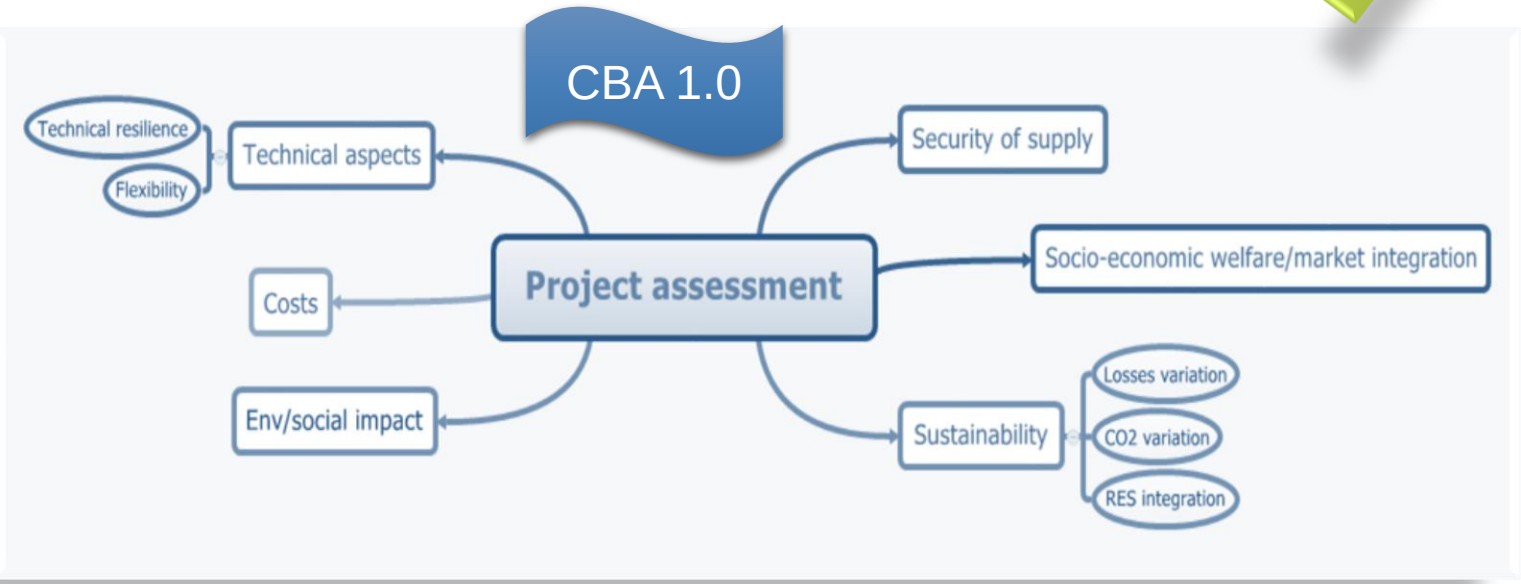


- **Oct – Nov 2016 - EC and MSs consultation**

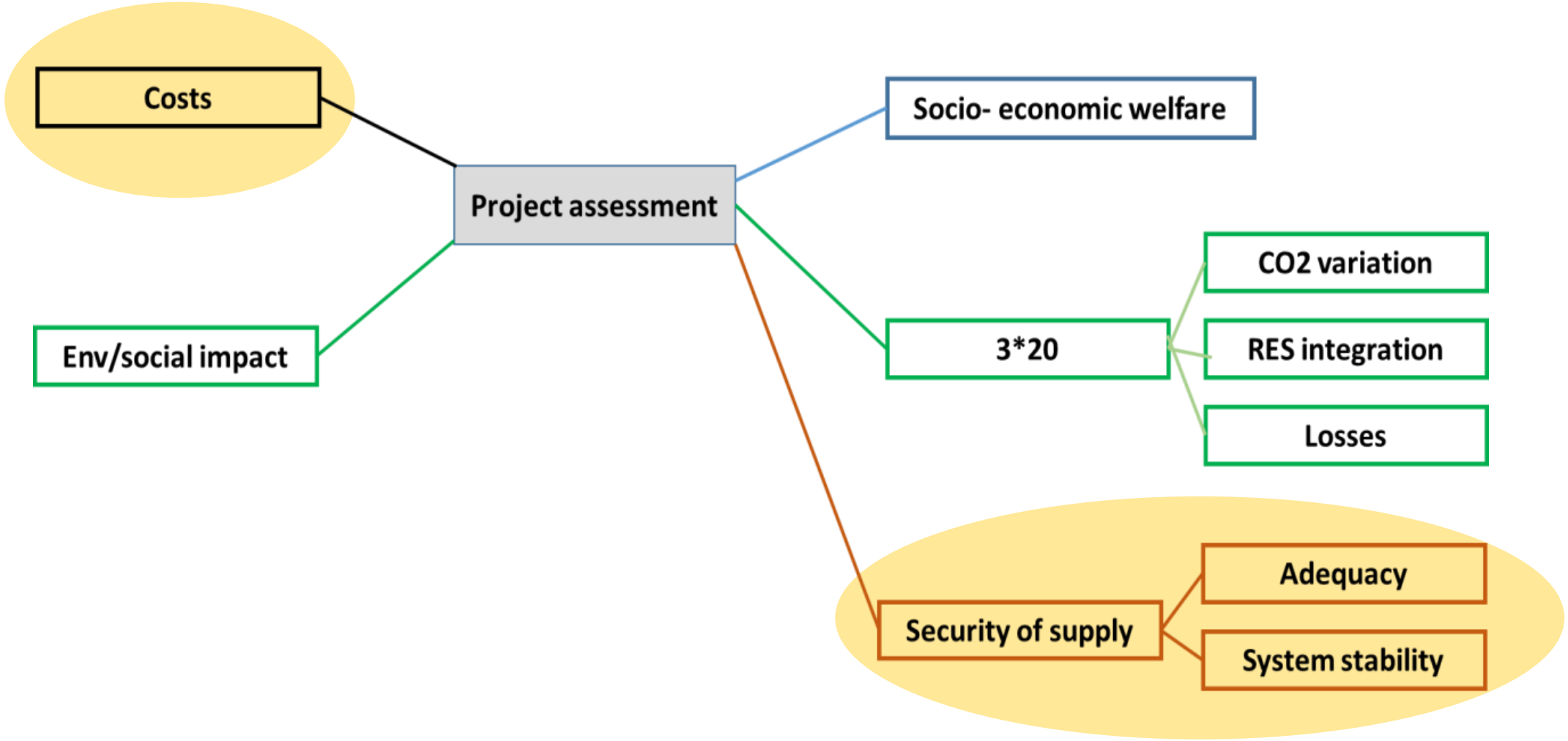
- **Dec 2016 - submission to EC for the official EC approval**
- **By end Spring - EC approval** of the final CBA 2.0 and publication in the official Journal

Going from 1.0 to 2.0 CBA

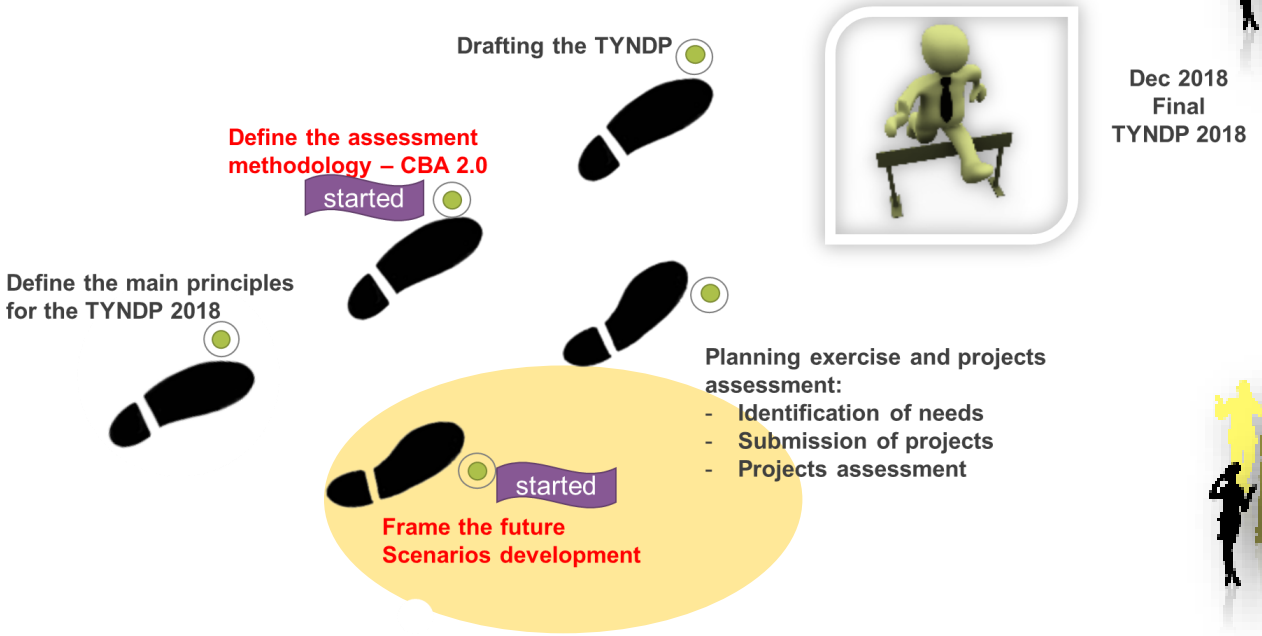




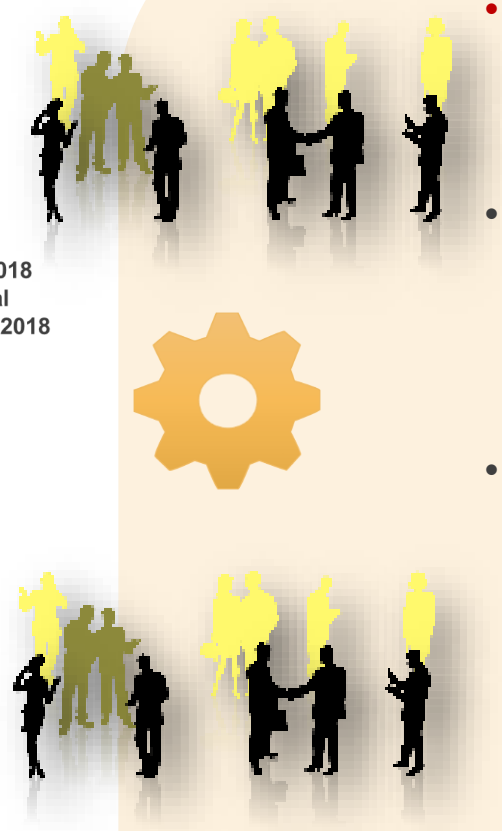
CBA 2.0 – main changes in indicators



Tyndp 2018 scenarios development



Dec 2018
Final
TYNDP 2018



- **12 May- 12 June– public web based consultation aiming to define the scenarios assumptions**
- **2 June - public workshop - aimed to get the first input on scenarios frame**
- **Next steps still to be defined- expected :**
  - **Interaction on the methodology for scenario development**
  - **Interaction on the scenario data**
  - **Interaction on the draft reports**

Overview of the stakeholders' interaction within the TYNDP 16-18 period May – Sept 2016

TYNDP 2016

23 June – 9 Sept
TYNDP 2016 consultation

Oct 2016 public webinar on the comments received

Possibly another workshop/webinar in December

TYNDP 2018

25 April – 31 May
CBA 2.0 methodology – public web based consultation

12 May – 12 June
TYNDP 2018 public consultation scenarios assumptions

2 June
TYNDP 2018 scenarios assumptions public workshop

11 July 2016 - public webinar CBA 2.0

Over summer TYNDP 2018 principles – public web consultation

Next ND SG meetings

9 June 2016, 12:00 (start with lunch) end 16:30 – Brussels, Physical meeting

Topics:

- TYNDP 2016: maps - story behind the outcomes,
- Infrastructure forum
- Interconenction groups
- Next steps connection codes
- EC guideliens for inclusion in the TYNDP 2018 ? (may be moved to Sept meeting)

22 Sept 2016 – Brussels, Physical meeting:

Possible topics:

- Supergrid technology roadmap
- EASE energy storage technology roadmap overview

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